

ART. XI.—*Appendix to remarks on “The Older Tertiary
Strata at Bairnsdale.”*

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Since reading my notes last month on the North Gippsland tertiaries, I paid a short visit to Bairnsdale, and was fortunately able to see another section on the Mitchell River, about two miles higher up the stream than where we gathered the fossils last January. The locality had been previously visited by Mr. D. Clark, B.C.E., who kindly acted as guide on the occasion of my trip.

We drove along the south side of the river, and thence across the Lindenow Flats, till we came just opposite the house of a farmer named Skinner (Parish of Wuk Wuk). Having crossed the river in a boat, we found a fossiliferous bed exposed on the bank, extending from below water level to a height of about ten feet.

The strata consist of a light-coloured, friable, arenaceous rock, in which the shells are frequently well preserved. In the hard calciferous rock lower down the river, the fossils are for the most part casts only, and a perfect specimen is rare. The strata at Wuk Wuk reminded me of the calcareous bands at Muddy Creek, not only on account of the ease of working, but also because of the similarity of the fossils. Upwards of sixty species were obtained, the names of which are supplied in the following list. The species names of a few cannot be given, as although known from Muddy Creek and elsewhere, they have not yet been described :—

Voluta mc'coyii (juv.)
Ancillaria pseudaustralis.
Pleurotoma haastii
Cypræa murraviana.
Trivia avellanoides.
Natica polita.

Natica gibbosa.
Turritella acricula.
Turritella (*aff. tristira*).
Turritella, 3 species.
Siliquaria squamulifera.
Eulima danæ.

Cerithiopsis sp.	Dimya dissimilis.
Trochus, 2 species.	Spondylus pseudoradula.
Minolia sp.	Lima jeffreysiana.
Hemitoma oclusa.	Lima bassii.
Cylichna sp.	Pecten murrayanus.
Umbrella austrina.	Pecten foulcheri.
Entalis mantelli.	Pecten zitteli.
Corbula (? pixidata).	Ostrea (? hyotis).
Myadora sp.	Waldheimia insolita.
Mactra howchiniana.	Waldheimia garibaldiana.
Chione dimorphophylla.	Waldheimia sp.
Cytherea eburnea.	Terebratulina scouleri.
Chama lamellifera.	Cellepora fossa.
Crassatella dennanti.	Cellepora, several species.
Cardita delicatula.	Salenaria, 2 species.
Mytilocardia compta.	Eupatagus (? murrayanus) cast.
Leda vagans.	Echinolampus sp.
Barbatia celleporacea.	Monostychia australis.
Barbatia simulans.	Leiocidaris australis.
Pectunculus cainozoicus.	Placotrochus deltoideus.
Pectunculus mc'coyii.	Sphenotrochus excisus.
Limopsis belcheri.	Isis sp.
Limopsis aurita.	Biloculina depressa.
Macrodon cainozoicus.	Orbulina sp.
Modiolaria singularis.	

An inspection of this list shows at once that, just as with the calciferous rock lower down the river, we are dealing with an Eocene, and not a Miocene, deposit. The two sets of strata are practically the same, the difference in the rocks being mainly one of sedimentation. Mr. Howitt, F.G.S., the well known and able geologist, in speaking of these deposits, says, "apparent alternations of hard and soft material arise, I believe, solely from variations of texture, due to local causes."* The noticeable feature of the Wuk Wuk section, is that it yields so many more species than the calciferous rock close at hand, enabling us to determine with the utmost confidence, the particular epoch to which the Bairnsdale limestones belong. It will be remembered that on the Murray cliffs, the friable strata, rich in mollusca, merge gradually into the hard calciferous rock,† and that at Muddy Creek, the lower beds, with their profusion of fossils, either rest upon, or are bounded by, a similar rock.‡ On the Mitchell River, therefore, we have simply another illustration of the close connection, or rather identity, of the two sets of strata.

* Progress Report, No. II, Geological Survey of Victoria, 1874, p. 62.

† Professor Tate, Proc. Roy. Soc. S.A., Vol. VII, p. 39.

‡ Proc. Roy. Soc. S.A., Vol. XI, p. 34.

The list of fossils given represents only a few hours' work by Mr. Clark and myself, but with perseverance, I have no doubt that quite a large collection might easily be made at Wuk Wuk.

Whether it may prove important economically to have our tertiary deposits exhaustively searched, I cannot say, but regarding the scientific value of the investigation, there can be no doubt. The history of Australia in tertiary times is of interest, not only to the geologist, but also to the student of botany, zoology, and other sciences; and in order that this may be fully understood, it is absolutely essential that the deposits known in different parts of the Continent should be referred to their proper horizon.

During the discussion on my paper last month, some questions were asked concerning the strata to the north of Bairnsdale and Jemmy's Point. The required information is contained in a general account, accompanied by a sketch map of the Mitchell River division, given by Mr. Howitt in Progress Reports, Nos. II and IV of the Geological Survey of Victoria, which should be consulted by anyone studying either the tertiary beds of the locality, or the more ancient strata underlying them. In those articles the Bairnsdale limestones are called Miocene, but I have given my reasons, both here and in previous papers, for altering this into Eocene, reserving the term Miocene for the Jemmy's Point beds.
